ED Smart Notifications

Business Requirements

Version	**6.9**
Date	**Oct. 11, 2018**
Project	**PMO-13: ED Smart Notifications**
Author	**Andréa Levesque**

4 **CONTENTS**

Rhode Island ⊕ Quality Institute

24 **Document Purpose**

25 This purpose of this document is to create clear, concise and agreed-upon set of customer requirements
26 that allow RIQI to implement WHAT the customer wants and WHY. Items that explain HOW the
27 requirements should be implemented will not be included in the scope of this document.

28 The priority levels for a given user requirement (Must Have, Nice to have) are included for
29 consideration. "Nice to Have" items may not be implemented within this project due to technical
30 limitations, capabilities of the environment, funding, etc.

31

32 **Revision History**

Version	Revision Date	Implemented By	Reason
1.0	12/7/2016	Colin Fletcher	Initial Document
1.4	12/30/2016	Colin Fletcher	Incorporated feedback and comments from Megan Ranney and RIQI: Karen Sax McLoughlin, Elaine Fontaine, Michael Dwyer, Jen Cormier and Tamara Ames. Colin: updated the end to end sequence diagram to add text on the return arrow.
1.5	1/12/2017	Colin Fletcher	Feedback from Megan Ranney
1.5.2	1/12/2017	Colin Fletcher	Updated the End to End Sequence Diagram
5.3	12/14/17	Colin Fletcher	Updated ED Smart Notifications to ED Smart Notifications. Altered the RIQI Approval list.
6.0	6/20/18	Andrea Levesque	Reorganized document into new RIQI format and updated content based on recent meetings.
6.1	6/21/18	Andrea Levesque	After team meeting.
6.2	6/22/18	Andrea Levesque	Includes feedback from Elaine.
6.3	7/12/18	Andrea Levesque	Includes comments from Amy & responses from RIQI.
6.4	7/13/18	Andrea Levesque	Added suggested wording with Michael Dwyer about Break the Glass & Part 2, if that is going to be within scope.
6.5	7/20/18	Andrea Levesque	After meeting with Amy & Melissa, then team meeting & emails week of 7/16. Accepted Amy's changes, per her request.
6.6	7/30/18	Andrea Levesque	After meeting with Elaine & Amy 7.30.
6.7	8/9/18	Andrea Levesque	Includes Amy's change to 1 word & suggested removal of #3 Further Investig. Needed.
6.8	9/6/18	Andrea Levesque	Struck out requirements 3A.5, 3C.3A & 3C.3B around ambiguous (RIQI will not be sending Smart Notifications) & struck out Further Investigation Needed #2 (this will be for 18+ only).
6.9	10/11/18	Andrea Levesque	Revised to make 3A.3 more efficient.

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33 **STAKEHOLDER APPROVAL**

34 The following Stakeholders will approve this document.

Organization	Name	Role
Brown	Megan Ranney	Director, Emergency Digital Health Innovation and Special Projects; Associate Professor, Dept of Emergency Medicine / Dept of Health Services, Policy and Practice, Brown University / Injury Prevention Center of Rhode Island Hospital
EOHHS	Amy Zimmerman	Stakeholder - RI State HIT Coordinator
EOHHS	Melissa Lauer, MPA	Stakeholder -HIT Specialist

35 **RIQI APPROVAL**

36 The following RIQI individuals will approve this document.

Organization	Name	Role
RIQI	Elaine Fontaine	Stakeholder – Business Owner, COO
RIQI	Charlie Dansereau	Stakeholder – IT
RIQI	Faye Howard	Stakeholder – Operations
RIQI	Michael Dwyer	Stakeholder – Risk Management & Compliance

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38 **PROJECT CONTACTS**

39 The following table outlines the key project contacts and responsibilities for each participating organization.

Organization	Responsibilities	Contact(s)
RIQI – Business Owner	Represents Sponsor of the program organization and is ultimately responsible for foreseeing that the program meets its overall objectives. Empowered to make decisions on behalf of the sponsor.	Elaine Fontaine, EFontaine@riqi.org
RIQI – Project Manager	Responsibility for the successful initiation, planning, design, execution, monitoring, controlling and closure of a project.	April Arnold, AArnold@riqi.org
RIQI – Analyst	Responsible for defining needs and recommending solutions that deliver value to stakeholders. Gather and document needs and the rationale for change, and to design and describe solutions that deliver value.	Andrea Levesque, ALevesque@riqi.org

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41 **RELATED DOCUMENTATION**

42 This table includes key related documentation.

ID	Title	Version	Notes
	Risk Prediction of Emergency Department Revisit 30 Days Post Discharge: A Prospective Study https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4231082/	2014; 9(11): e112944	Megan Ranney recommended predictive analytics tool: Published online 2014 Nov 13. doi: 10.1371/journal.pone.0112944

43 ## REQUIRED LEGAL AGREEMENTS

44 This table includes legal agreements that will be required for this project.

45   **DSP** = Data Sharing Partner
46   **DUA** = Data Use Agreement
47   **MSA** = Master Services Agreement
48   **SOW** = Statement of Work
49   **BAA** = Business Associate Agreement

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Contract	Assigned To	Notes
For DSPs sending ADTs into CurrentCare & Care Management (RIQI collecting all ADTs for all DSPS on all patients): **MSA + SOW to send data into Care Management + BAA** **Purpose**: RIQI receives all Care Management data from DSP **Sending Party**: RIQI **Signing Party**: All DSPs	N/A	Already in place with all existing DSPs.
DSP Agreement + BAA **Purpose**: Lifespan shares ADT data with RIQI (through Epic vendor). The ADTs affected by this project will be the registration ADTs (called "quick reg" at Lifespan) from the Lifespan EDs. **Sending Party**: RIQI **Signing Party**: Lifespan	N/A	Already in place with Lifespan/RIQI
DUA + BAA **Purpose**: RIQI shares CurrentCare data with Lifespan (through Epic vendor) **Sending Party**: RIQI **Signing Party**: Lifespan	N/A	Already in place with Lifespan/RIQI
SOW to receive data from Care Management **Purpose**: RIQI shares Care Management data with Lifespan (through Epic vendor) – specifically the EDSN "HIE" data and flag. **Sending Party**: RIQI **Signing Party**: Lifespan	Elaine Fontaine & Michael Dwyer	RIQI will work with Cedric Priebe at Lifespan

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1 OVERVIEW

The ED Smart Notifications (EDSN) project is a joint effort to design, implement and utilize functionality to summarize relevant data and utilize a predictive model ("HIE Risk Model") to inform Emergency Department (ED) providers about a patient risk ("HIE Patient Risk") at the point of care to support the informed clinical decision making.

The ED Smart Notifications project enables actionable insights about patients to be seamlessly delivered to the ED provider as part of their workflow in the Emergency Department. When a patient quick registers in the Emergency Department, additional data will be collected, such as data from the Prescription Drug Monitoring Program (PDMP); an analytics model will be run against the data; and the predictive insight ("HIE Risk Flag(s)" & "HIE Risk Report") will be delivered to the provider in their Emergency Department electronic health system.

The ED Smart Notifications project will begin with development of a preliminary analytics model that will be utilized for the initial rollout. The initial roll-out will include three selected Lifespan Emergency Department as determined by Lifespan.

The scope of the current "HIE risk" project will include 1) risk of opioid use disorder or opioid overdose **and/or** 2) 7 and/or 30 day ED visit history. Future projects can address other factors.

2 ACTORS

Actor	Description
ED Care Team	Emergency Department Physicians and Clinical Care Team
Customer EHR	Customer's Electronic Health Record (EHR)
RIQI HIE	Rhode Island Quality Institute Health Information Exchange

3 ASSUMPTIONS

1. The ED Smart Notification functionality will be available for all patients, not just those who are enrolled in CurrentCare.
2. The patient does not have to have a prior ED visit within the state to be included in the ED Smart Notification functionality.
3. Data from the Prescription Drug Monitoring Program (PDMP) will be available to the predictive model.
4. The existing Care Management Alert and CurrentCare Hospital Alert functionality remains unchanged by these requirements and user stories.
5. All patients sent in a Lifespan ADT will be added to the Lifespan ADT Dynamic Panel, even if they are enrolled in CurrentCare or on another CM panel.
6. RIQI will always receive a single Registration ADT per encounter.
7. During outages, RIQI will queue EDSN messages up and then send when the interface is back up.
8. Any references to HIE data refers to CurrentCare and Care Management data

4 USE CASES

4.1 RIQI Stores All ADTs

- RIQI receives and stores all ADTs for all patients from all Data Sharing Partners (DSPs) that send ADTs

4.2 RIQI Creates Risk Model

- RIQI creates an analytic model to assess 1) risk of opioid use disorder or opioid overdose **and/or** 2) 7 and/or 30 day ED visit history

4.3 RIQI Sends Risk Level(s) & HIE Data

- RIQI creates functionality to notify EHR of HIE risk level(s) & other relevant HIE data

4.4 ED Care Team Views Risk Level Flag(s) in EHR

- Care Team views new HIE risk level flag(s) within the EHR

4.5 ED Care Team Clicks for More Information

- Care Team clicks for more information behind the HIE risk data, as needed

5 USER STORIES

5.1 ED Care Team

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#	Requirement	Priority (Must Have, Nice to Have)
1.1	As the ED Care Team, I want the RIQI HIE to **create a data model to assess** 1) risk of opioid use disorder or opioid overdose **and/or** 2) 7 and/or 30 day ED visit history based on an analysis of: • historic HIE data (ADT data stored for all patients) • information available during the patient's current encounter (within the registration ADT message) • information indicating treating relationships at facilities in RI (including Community Mental Health Organization (CMHO), Opioid Treatment Program (OTP) and other Part 2 facilities) • prescription drug monitoring program data • information available in CurrentCare (NOTE: CurrentCare data will not be used to create the model, because that would add bias; but this data can be used to calculate opioid risk (ie, a depression diagnosis from a CurrentCare CCD, etc) and can be sent in the text of the HIE report) so that I am provided with actionable insight based on HIE data that I can use when treating patients. (Note: The contract states that the algorithm "is external to this agreement" and "only the *use* of the algorithm is within the scope of this SOW.")	Must Have
1.2	As the ED Care Team, I want to initially **limit the scope of patients that are included** in this project to all ED Registration ADTs with patients 18 years of age or older, so that the service will be provided to the adult population while there are further discussions with the Department of Health, EOHHS and ED clinicians regarding the use the adult algorithm with a younger age cut off (reference #2 below in "Further Investigation Needed" section).	Must Have
1.3	As the ED Care Team, I want to **view new flag(s) in my EHR** to alert me of an HIE risk level based on the above HIE data model, so that I can easily view which patients are at risk for Opioid use disorder or opioid overdose and/or have 7 and/or 30 day ED visit history as defined by the algorithm. (Note: This flag capability (single, double, multiple, colors, null, etc) will be mutually agreed upon between all stakeholders at a later date.)	Must Have
1.4	As the ED Care Team, I want to be given the option to click to **view supporting "HIE report" information**, so that I can view important information related to the potential HIE risk.	Must Have
1.5	As the ED Care Team, I want the **supporting "HIE Report" to include any active treating relationship(s) (ex: CMHO/OTP/PCPs/others) where permissible (by law and contractual obligation)**, so that I can connect with the Care Team at the treating organizations to understand care history and coordinate future care plans.	Must have

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105 **5.2   Customer EHR**

#	Requirement	Priority (Must Have, Nice to Have)
2.1	As the Customer EHR, I want to **setup secure infrastructure/interface(s)** (if not already in place) to receive HIE risk data, so that I can share information securely for this project.	Must Have
2.2	As the Customer EHR, I want to create new functionality to **display HIE risk flag(s)** in the ED EHR, so that I can notify the ED Care Team when a patient is at risk.	Must Have
2.3	As the Customer EHR, I want to create new functionality to **display a text-based report of HIE risk data** (such as a PDF) from within the ED EHR, so that I can notify the ED Care Team of important information related to the HIE risk flag.	Must Have

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107 **5.3   RIQI**

108   **RIQI HIE**

#	Requirement	Priority (Must Have, Nice to Have)
3A.1	As the HIE, I want to enable functionality through Care Management to **receive and store ADTs for all patients** from all DSPs that send ADTs, so I have historic encounter information available to the HIE risk model.	Must Have
3A.2	As the HIE, I want to **setup secure infrastructure/interface(s)** (if not already in place) to send HIE risk data, so that I can securely share HIE risk information for this project.	Must Have
3A.3	As the HIE, I want to enable functionality to **track eligible patients** ~~create an EDSN dynamic panel of "active" patients~~ for which I am assessing & reporting on HIE risk level, so that I can provide the service on the intended population and so that I can accurately charge for the service.	Must Have
3A.4	As the HIE, I want to **calculate the HIE risk score** based on available data, so that the data is available at the time the ED clinician sees the patient.	Must have
~~3A.5~~	~~As the HIE, I want to provide the necessary information to ED clinicians when there is an ambiguous match for a patient record (reference #3 below in "Further Investigation Needed" section).~~	~~Must have~~
3A.6	As the HIE, I want to create and **store new field(s)** (or use existing one(s)) associated with each panel that tracks the **Type of Panel Organization (Ex: CMHO or OTP)**, so that I can use this information within the predictive model.	Must Have
3A.7	As the HIE, I want to **create and store new field(s)** calculated by the HIE risk algorithm to calculate **numeric HIE risk score(s)** and **risk flag(s)** associated with each encounter, so that I can determine when to provide this information to customers.	Must Have

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111   **RIQI Finance & Operations**

#	Requirement	Priority (Must Have, Nice to Have)
3C.1	As RIQI Finance, I want to receive a **monthly report of the number of encounters** for which the HIE risk was assessed, so that I can accurately report metrics and so that I can invoice the customer.	Must Have
3C.2	As RIQI Operations, I want to receive a **monthly report** of the number of encounters for which the HIE risk was assessed, **and an alert was shared to the customer**, so that I can accurately report metrics.	Must Have
3C.3	As RIQI Operations, I want to receive a **monthly report** of the number of encounters for which the HIE risk was assessed, **and an alert was NOT shared to the customer**, so that I can accurately report metrics.	Must Have
3C.3A	As RIQI Operations, I want to receive a **monthly report** of the number of encounters for which there was an ambiguous/duplicate match, so that I can accurately report metrics.	Must have
3C.4	As RIQI Operations, I want to **update the ambiguous/duplicate matching tools and reporting**, so that I can research and resolve duplicate matches to support the EDSN project.	Must Have
3C.5	As RIQI Operations, I want to receive a **monthly report that details transaction totals for this EDSN project** (ie, how many were received/sent/dropped due to insufficient information, etc), so that I can support the interface.	Must Have
3C.6	As RIQI Operations, I want to receive access to a **report in the Care Management Portal that details totals for all dynamic panels**, so that I can support the interfaces.	Must Have
3C.7	As RIQI Operations & RIQI Finance, I want to **setup end-to-end processes** to implement/update the ED Smart Notifications Panel/service and also to process for termination/removal of the service when that is needed in the future, so that I can be ready to support this new service.	Must Have
3C.8	As RIQI Operations & RIQI Finance, I want to improve the **Salesforce/Jitterbit to Healthshare process** to account for differences in the EDSN Panel, so that I can be ready to support this new service.	Must Have

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113   6   OUT OF SCOPE ITEMS

114   1. Implementing this functionality at organizations other than Lifespan EDs
115   2. Additional data sources above and beyond what is actually and legally available in RIQI
116   production environment or being added as part of this project.
117   3. There will not be a Care Management Dashboard (RIQI product based on a panel, which
118   displays hospital, ED and SNF encounters) associated with this project.

119   4. No additional inbound interfaces from the customer will be created. Inbound ADTs will
120   contain all information needed to determine which ADTs/encounters will trigger the request
121   to calculate HIE risk, as well as any provider information needed to query PDMP.
122   5. The types of ADTs that trigger ED Smart Notifications will be limited to Registrations (A04). All
123   other types of ADTs (admit, discharge, transfer) will be excluded (ie, will not trigger ED Smart
124   Notifications; although they may inform HIE risk scores) as part of the scope of the project).

7   FURTHER INVESTIGATION NEEDED (TO DETERMINE IMPLEMENTATION APPROACH)

127   1. ED Care Teams have expressed interest in receiving information to let them know whether a
128   patient with a high risk flag is being treated at a CMHO/OTP. RIQI, with assistance from the
129   state, will make good faith efforts (alter Care Management legal agreements) to work with
130   CMHOs/OTPs to allow display of active treating relationships.
131   2. ~~Age - Determine whether running the adult high risk algorithm applied to individuals aged~~
132   ~~16-18 would be helpful and desired by DOH and ED clinicians, and if so, implement~~
133   ~~accordingly.~~

8   FUTURE CONSIDERATIONS

135   1. Future Consideration: future projects could include a model with other high risk attributes,
136   behavioral health, and healthcare overutilization.
137   2. Future Consideration: RIQI could incorporate risk score(s) & flag(s) into RIQI products and
138   services.
139   3. Future Consideration within Epic: For patients enrolled in CurrentCare, it might be helpful to
140   include within the "HIE risk document of related data" a link to that patient's CurrentCare
141   Summary report in Care Everywhere, for more information.
142   4. Future Consideration: CMHOs/OTPs and ED Care Teams have expressed interest in having the
143   CMHOs & OTPs **provide contact information (specific for that patient) within their panel file**
144   to RIQI, so that information could be displayed to the ED Care Team. The ED Care Team could
145   connect with the Care Team at the CMHO/OTP to understand care history and coordinate
146   future care plans.
147   5. Future consideration: Other outcome measures may be considered
148   6. Future consideration: Delivery of alerts to non-ED providers (e.g., case managers, PCPs) may
149   be considered
150   7. Future consideration: Provide risk of inpatient utilization.
151   8. Future consideration: implement a different EDSN model for children <18 & at the Hasbro ED.

9   NON-FUNCTIONAL

153   1. Reporting Requirements from contract:

154   Monthly: Provide monthly progress reports to EOHHS on the last business day in each month,
155   which includes: Updates on all metrics as follows:
156   1) Pre Go-Live
157   a) Number and type of users involved in user acceptance testing

158   2) During the Post Go-Live Period and when the state is required to provide a final
159   report
160   a) Outage log, including all Outages related to the Application, the length of the
161   Outage in minutes and cumulative duration of all Outages.
162   b) Number and type of clinicians with access to alerts
163   c) Number of records with an alert shared through the track board
164   d) Number of records that were processed, but not shared through the track
165   board.
166   2. SLAs from contract:

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Item	Description	Penalty
Prolonged Outages	Software is inoperable, meaning that Users cannot use the system due to Issues primarily caused by Contractor and within Contractor's responsibility, for longer than 72 hours (accrued cumulatively in minutes of each Outage) during the Post Go-Live Period.	Up to 10% of amount owed for completion of Milestone 1.16
Data errors	Software is returning incorrect data to the Emergency Department based on a Problem primarily caused by Contractor and within Contractor's responsibility, excluding the algorithm and quality of data from the data source.	10% per Problem of amount owed for completion of Milestone 1.16
Software Inoperable	If at the end of the Post Go-Live Period the Software is Inoperable, the Contractor will be given an opportunity to demonstrate that the Software is Operable within three (3) business days (excluding weekends and Contractor recognized holidays), before a determination of any penalty is made. Contractor may mutually agree with the state to extend the end date of the Post Go-Live Period.	100% of amount owed for completion of Milestone 1.16

10 TRAINING

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169 1. ED Care Team:
170   • I want to receive communication, training and/or collateral on how to use flag, what
171   information is available, when it will be populated or not populated within my
172   workflow.

173 2. Internal RIQI staff who deliver services:
174   • I want to be educated about this important feature.

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176 **11 BUSINESS PROCESS FLOW DIAGRAM FOR EDSN (FROM LIFESPAN**
177   **PERSPECTIVE)**

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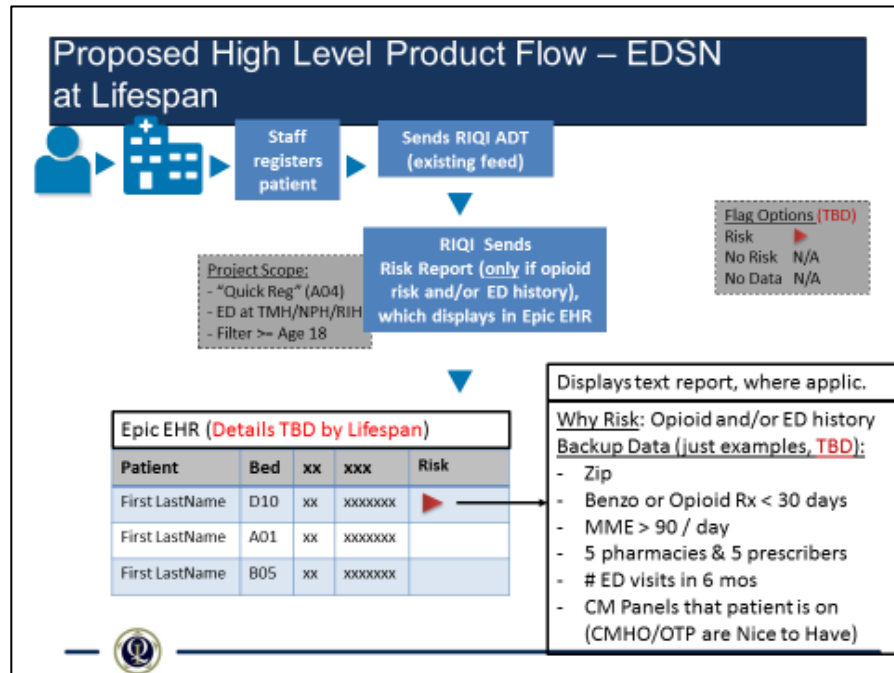
179 **12 BUSINESS PROCESS FLOW DIAGRAM FOR EDSN (FROM RIQI PERSPECTIVE)**
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